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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,227	11/15/2000	Noriko Kawai	1035-291	8669
23117 7590 06/06/2007 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER NORRIS, JEREMY C	
			ART UNIT 2841	PAPER NUMBER
			MAIL DATE 06/06/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

09/712,227

Applicant(s)

KAWAI ET AL.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 6,21,27 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6,21,27 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/03</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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Claims 6, 21, 27, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants' Admitted Prior Art discloses with respect to figures 5 and 6 (AAPA), in view of US 5,408,052 (Inaba) and US 5,499,444 (Doane, Jr.).

AAPA discloses, referring primarily to figure 6, a bent flexible wiring board (110) comprising: a bent flexible insulating substrate (111); first bent wiring (inner 112) provided on one surface of the insulating substrate; first bent insulative protecting film (inner 114), provided on one surface of the insulating substrate, for protecting the first wiring; second bent wiring (outer 112) provided on the other surface of the insulating substrate; second bent insulative protecting film (outer 114), provided on the other surface of the insulating substrate, for protecting the second wiring; and a terminal portion (113), provided on at least one of the first wiring and the second wiring at an end thereof, to be connected to an external electrical component (120), wherein; said first insulative protecting film and said second insulative protecting film are placed to cover the first wiring and the second wiring except for at least the terminal portion (figure 6), and are bonded with the insulating substrate via an adhesive (116), said terminal portion is provided only on the first wiring (figure 6), and an end of the second insulative protecting film (outer 114) closer to the terminal portion, the second insulative protecting film being on a side of the substrate opposite the terminal portion, is farther away from an end of the insulating substrate where the terminal portion is provided than an end of the first insulative protecting film (inner 114) closer to the terminal portion (best seen in figure 5). AAPA does not specifically state that said first insulative protecting film and said second insulative protecting film are both polymer film. However, it is well known in

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the art to comprise insulative protecting films of polymer material as evidenced by Inaba (col. 2, lines 50-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a polymer material for the first and second insulative protecting films in the invention of AAPA as is known in the art and evidenced by Inaba. The motivation for doing so would have been to use a material known to be both protective against contaminants and dielectric to prevent unwanted shorting. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. Additionally, the modified invention of AAPA does not specifically teach that at least one of said first insulative protecting film and said second insulative protecting film, which is connected to the surface on which the terminal portion is provided is thinner than the insulating substrate [claim 6]. However, it is well known in the art, as evidenced by Doane, Jr. (figure 2) to make protecting cover layers (34 a,b) thinner than a base substrate (32) in a flexible board. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the protecting layers in the modified invention of AAPA to be thinner than the base substrate. The motivation for doing so would have been to reduce the thickness of the device without affecting the support of the wiring layers thus increasing the flexibility of the device (Doane, Jr. col. 6, lines 10-25).

Moreover, regarding claim 27, while the twice modified invention of AAPA does indeed teach that the first and second wirings are on opposite sides of said flexible wiring board (figure 6), modified AAPA does not specifically teach that the first and

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second wirings are in electrical communication with each other via a through hole [claim 27]. However, it is well known in the art to electrically connect first and second wirings on opposite sides of a flexible substrate via a through hole as evidenced by Inaba (figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to electrically connect the first and second wirings in the modified invention of AAPA via a through hole as is known in the art and evidenced by Inaba. The motivation for doing so would have been to allow signals to be transferred between the two wiring layers.

Similarly, AAPA discloses, a flexible wiring board comprising: a flexible insulating substrate (111) that is bent; a first bent wiring (inner 112) provided on one surface of the insulating substrate; a first bent insulative protecting film (inner 114), provided on one surface of the insulating substrate, for protecting the first wiring; a second bent wiring (outer 112) provided on the other surface of the insulating substrate; a second bent insulative protecting film (outer 114), provided on the other surface of the insulating substrate, for protecting the second wiring; wherein a part of an end portion of at least one of the first wiring and the second wiring represents a terminal portion (113), said part representing the terminal portion being exposed and to be connected to an external electrical component (120), wherein said first insulative protecting film and said second insulative protecting film are placed to cover the first wiring and the second wiring except for at least the terminal portion, and are bonded with the insulating substrate via an adhesive (116), wherein only the first wiring (inner 112) has said terminal portion,

and wherein an end of the second insulative protecting film closer to the terminal portion, the second insulative protecting film being on a side of the substrate opposite the terminal portion, is farther away from an end of the insulating substrate where the terminal portion is provided than an end of the first insulative protecting film closer to the terminal portion (best seen in figure 5). AAPA does not specifically state that said first insulative protecting film and said second insulative protecting film are both polymer film. However, it is well known in the art to comprise insulative protecting films of polymer material as evidenced by Inaba (col. 2, lines 50-55). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a polymer material for the first and second insulative protecting films in the invention of AAPA as is known in the art and evidenced by Inaba. The motivation for doing so would have been to use a material known to be both protective against contaminants and dielectric to prevent unwanted shorting. Furthermore, it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Additionally, the modified invention of AAPA does not specifically teach that at least one of said first insulative protecting film and said second insulative protecting film, which is connected to the surface on which the terminal portion is provided is thinner than the insulating substrate [claim 21]. However, it is well known in the art, as evidenced by Doane, Jr. (figure 2) to make protecting cover layers (34 a,b) thinner than a base substrate (32) in a flexible board. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to form the protecting layers in the

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modified invention of AAPA to be thinner than the base substrate. The motivation for doing so would have been to reduce the thickness of the device without affecting the support of the wiring layers thus increasing the flexibility of the device (Doane, Jr. col. 6, lines 10-25).

Moreover, regarding claim 31, while the twice modified invention of AAPA does indeed teach that the first and second wirings are on opposite sides of said flexible wiring board (figure 6), modified AAPA does not specifically teach that the first and second wirings are in electrical communication with each other via a through hole [claim 27]. However, it is well known in the art to electrically connect first and second wirings on opposite sides of a flexible substrate via a through hole as evidenced by Inaba (figure 1). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to electrically connect the first and second wirings in the modified invention of AAPA via a through hole as is known in the art and evidenced by Inaba. The motivation for doing so would have been to allow signals to be transferred between the two wiring layers.

### ***Response to Arguments***

Applicant's arguments with respect to claims 6, 21, 27, and 31 are have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

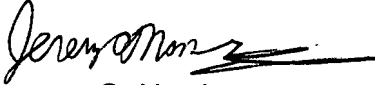
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
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Art Unit 2841

JCSN